

Alaskan Transportation

Fall 1996
Volume 21 Number 3
July-September 1996

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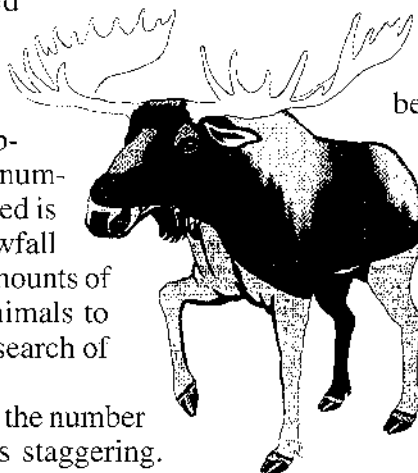
Between four and five hundred moose are killed each year by motorists in the state of Alaska.

One major contributing factor to the number of animals killed is the amount of snowfall in Alaska. High amounts of snow drive the animals to lower grounds in search of food.

In Anchorage, the number of moose killed is staggering. In 1994, there were 100 moose

killed within the city limits. In 1995 another 179 were killed, and as of August 31 of this year, 59 moose have been struck and killed by motorists.

The deadliest months are between October and March, when an average of 31 animals are killed each month. The spring and summer months are a lot friendlier to these animals. See "Moose" on page 4



Circuit Rider floats the Yukon

During August, 1996, Alaska T² and the University of Alaska Fairbanks Hutchison Career Center delivered vocational training to students in villages along the Yukon River via the Riverboat Circuit Rider Program. The training was held in Ft. Yukon, Beaver and Stevens Village. Students received college credit for the classes.

The training was held over a three-day period in each village and covered aluminum repair welding, small engine overhaul and pre-start maintenance. Walt Peterson and Doug Derickson of Hutchison Career Center taught the classes.

The first Riverboat Circuit Rider training in 1995 was the re-



Art Henry, Jr., William Henry and Francine Henry study small engine repair during a circuit rider class in Beaver.

sult of a joint venture between Hutchison Career Center and Alaska T².

Walt Peterson and Sharon McLeod-Everette, Alaska T² Center Director were working on spring structural welding training for the

See "Training" on page 3

Alaska T² celebrates 10th anniversary

In June, 1986, under the auspices of Department of Transportation and Public Facilities (DOT&PF), the Alaska Transportation Technology Transfer (T²) Center began services to Alaska's transportation professionals under FHWA's national Rural Technical Assistance Program (RTAP). Ten years later, Alaska T² continues to bring transportation information and training opportunities to Alaskans. During that time, both RTAP and Alaska's T² center have grown significantly.

The RTAP program is now called "LTAP," short for Local Technical Assistance Program. Alaska was the 38th state to form a T² center. Today, each state plus Puerto Rico has one. FHWA also contracts

with six centers to provide services to American Indian Tribes; Alaska T² receives funding for service to Alaska Natives. The T² centers formed a national association to address issues affecting all centers, and worked with the Transportation Research Board (TRB) to create a TRB Committee on Technology Transfer.

In Alaska, the T² Center was first located at the University of Alaska Fairbanks in a shared venture between UAF's School of Engineering and DOT&PF's Statewide Research Section. T² activities were moved within DOT&PF and are now located at the agency's Peger Road office in Fairbanks. From its modest beginnings, the library has grown to 15,000 publications, 400 plus videos,

49 audio cassettes and 30 pieces of software and CD ROMs. Loaning activity is high, and many T² program participants are taking advantage of self-help training through the library. Training and information dissemination have remained constant activities, and a road show which delivers customized training is now under way. Two highlights of the last ten years were: Alaska T² hosted the Annual National RTAP Conference in August, 1990, and coordinated the Alaska Transportation Week Conference in April, 1996. Both had high attendance rates, local, national, and international presenters and participants, and were actually fun to do.

May the next 10 years be as fruitful and fun.

Asphalt offers a way to recycle toner

Toner is the dry ink commonly found in laser printers, copiers and fax machines. Countless used cartridges containing spent toner are disposed of each day with other garbage in landfills. But researchers hold that the landfill may not be the only possible resting place for the toner. Cartridge

remanufacturing firms say that the most common copy machines (Xerox, Minolta, Canon and Mita) use toner composed primarily of styrene acrylate copolymer, carbon black, amorphous silica and ferrites, which are basically benign materials. Toner becomes sticky when heated, thus hot asphalt pav-

ing mixtures may be a suitable disposal site for the spent toner.

Texas Transportation Institutes literature search identified only one research report on an Oklahoma State University/Xerox study of toner recycled into asphalt. According to Rakesh Tripathi, who worked on the research team and is now a TxDOT engineer in Waco, "Our lab tests showed that Hveem stability actually increased with the use of toner, and that toner can occupy up to 10 percent of the weight of the asphalt cement."

While the field test section constructed for this study is only a few years old, preliminary analysis of the site is positive. With early research showing that toner is a viable additive for asphalt pavements, and the growing interest in recycling, there is now a genuine need to continue research in this area and to develop a large-scale toner collection process.

Reprinted with permission from "Texas Transportation Researcher," Winter 1995-96.

News & Views

The Alaska T² Center has received two new videos, "What is Anti-Icing?" and "Anti-Icing for Maintenance Personnel." These videos are available for loan. To borrow either of them, call the T² library at (907) 451-5482.



The American Traffic Safety Services Association (ATSSA) launched its web site, the ATSSA Safety Net, in late March. This website offers information and resources relevant to safety issues. An industry "yellow pages" is also planned. The ATSSA Safety Net site can be found at <http://www.atssa.com>.



The American Traffic Safety Services Association is selling a CD-ROM that contains the most recent edition of the Manual on Uniform Traffic Control Devices. The CD-ROM contains a built-in search engine and allows graphics from the MUTCD to be copied and pasted directly into documents. The cost for the MUTCD CD-ROM is \$95 for ATSSA members and public officials and \$175 for all others. To order or for more information, contact Gloria Moody at (540) 898-5400.

Training

Continued from page 1

Department of Transportation and Public Facilities' Maintenance and Operations employees. They began to discuss training for rural areas. Hutchison Career Center had thought about delivering training by riverboat but didn't have enough funding. The Alaska T² Center had recently received \$50,000 in funding from the Federal Highway Ad-

ministration and the Bureau of Indian Affairs to provide transportation technical assistance to Alaska Natives, and was looking for cost-effective ways to do meaningful training.

The 1995 Riverboat Circuit Rider Program delivered two classes, Welding Safety and Equipment Pre-Start Maintenance, to Rampart, Ruby, Galena, Koyukuk, and Kaltag. Walt Peterson instructed the class, assisted by Gerald Andrews of Operating Engineers Local 302, and apprentice Erich Hoffman.

Since the program's commencement, the instructors learned that

there is support for vocational training in the villages. Clara Johnson of the UAF Rural College suggested the potential for the university to develop a certificate program, perhaps called the "Village Maintenance Certificate."

Producers of the Riverboat Circuit Rider Program are considering expanding to include spring training, perhaps beginning near Anvik on the Yukon River and moving north. As soon as the ice goes out, the instructors would travel down river to Anvik then move north at an instructional pace that stays ahead of the salmon. The fall training is scheduled to avoid conflicts with salmon fishing and moose hunting.

-by Sharon McLeod-Everette



Far Left: Instructor Doug Derickson (middle) helps students Lewis Firmin, Jonathon Solomon, Jr., Craig Fleener and Harry Kelly learn small engine repair.

Left: Students practice aluminum welding at a class in Stevens Village.

Free Publications

The Alaska Technology Transfer Center has several publications available free on a first come – first served basis. The titles currently available are:

- *Guidelines for Evaluating Fluorescent Strong Yellow-Green Crossing Signs*
- *SHRP Product Catalog*
- *LTAP Information Booklet*
- *National Conference on Work Zone Safety Conference Proceedings*
- *LTAP Resources Directory, January 1995*
- *Distress Identification Manual for the Long-Term Pavement Performance Project*
- *Innovative Materials Development and Testing Volume 2: Pothole Repair*
- *A Study of Benefits, Accomplishments and Resource Needs of the Local Technical Assistance Program*

Anyone who wishes to receive copies of these publications should stop by the T² office or contact Susan Earp at 451-5320.

Moose

Continued from page 1
mals. Fatalities average only eight per month.

The amount of daylight seems to have something to do with moose getting hit on public roads. Winters in Alaska are mostly dark, with about four hours of daylight per day between the hours of ten in the morning and two in the afternoon during December and January. Most of the accidents involving moose occur during darkness, whether it be midnight or six in the evening. During the spring and summer Alaska experiences almost twenty hours of daylight. Most accidents involving

moose during the summer occur between the hours of 10:00 p.m. and 5:30 a.m., the twilight hours.

The vehicle damage sustained in accidents with these huge animals is in the hundreds of thousands of dollars. It is not uncommon for a vehicle more than five years old to be considered a total loss due to the extensive damage received when involved in an accident with an 800 to 1,200 pound moose.

All is not lost, however. Local needy families, churches and non-profit organizations are called out to salvage the meat for consumption.

- by David Luera

HITEC Bulletin notebook available

The Alaska T² library has the new version of the Highway Innovative Technology Evaluation Center's (HITEC) Product Bulletin Notebook available for loan. HITEC is an organization that evaluates various new technologies. As new products are evaluated, the notebook will be updated. Product evaluations included in the current version are:

- | | |
|--|--------------------------|
| • Seapile™ | • Channel Bridge |
| • Composite Column Wraps | • BONDADE CU-31 |
| • Glare Glow Display Devices | • Valve Box Cushion |
| • ALLSign™ Stop Sign | • Sight and Sound Screen |
| • Seismic Isolation & Energy Dissipation Devices | |
| • Troxler Water/Cement Ratio Gauge | |
| • SNOWFREE™ Heated Pavement System | |

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This newsletter is funded by a grant from the Federal Highway Administration and the Alaska Department of Transportation and Public Facilities. The material contained herein does not necessarily reflect the views of the Alaska Department of Transportation, Federal Highway Administration or the T² staff. Any reference to a commercial product or organization in this newsletter is only for informational purposes and is not intended as an endorsement by the Alaska T² Center.



Local Technical Assistance Program

Department of Transportation and Public Facilities

2301 Peger Road M/S 2550

Fairbanks, AK 99709-5399

address correction requested

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Eielson environmental program a success

On Eielson Air Force Base the men and women assigned to the transportation vehicle maintenance fleet know adversity. In Alaska, 22 miles south of Fairbanks and just 100 miles south of the polar circle, temperatures range from 90 degrees Fahrenheit in the summer to -60 F in the winter. Vehicle maintenance personnel maintain over 800 vehicles - from Ford pickups to Osh-Kosh snow removal vehicles, in this extreme environment. However, their greatest challenge came in the form of federal mandates, namely reducing hazardous waste generation.

In 1993, hazardous waste production at Eielson exceeded 53,000 pounds. Clay absorbents, used oil, floor drain sludge, degreasing solutions, used antifreeze, fuel filters, waste paint, paint-soaked rags and fluid from the radiator repair tank were the major waste streams being generated.

Lab analysis reports indicated that clay absorbents, used oil and floor drain sludge shared a common hazardous waste determination factor - chlorinated solvents. Used antifreeze, degreasing solutions and by-products of painting contained heavy metals, while fluid from the radiator repair tank was laden with heavy metals and sodium hydroxide.

Aggressive management, painstaking research, and alternative methods allowed them to eliminate seven waste streams and reduce 12 others. Hazardous waste production for 1995 was a little more than 10,000 pounds, an 81 percent decrease from 1993. So far in 1996, they have reduced hazardous waste 18 percent from 1995. With the reductions achieved, they could choose

to sit on their laurels; however, when they started their reduction plan in 1993, they set a goal of zero hazardous waste generated and hope to meet it by 1998.

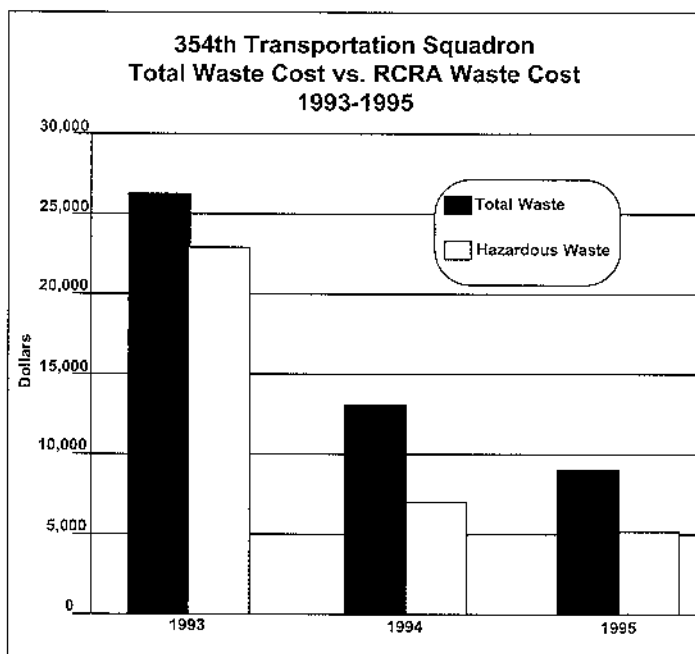
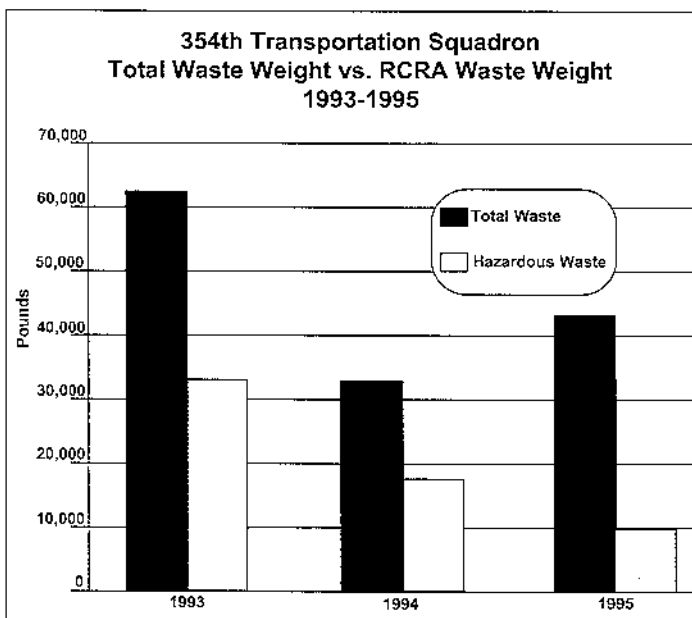
Operational repair and body work are the two main categories of vehicle maintenance being performed at Eielson on a daily basis. Operational repair is the service, repair and replacement of vehicle components including engines, transmissions, axles, brakes, tires, hydraulic systems and any special operating equipment a vehicle may contain.

Body work is the service, repair and replacement of vehicle interior items including seat belts, seat covers, floor mats, mirrors, windshields and door glass. It also includes service, repair and replacement of fenders, doors, exterior trim and painted surfaces.

Stemming from these two maintenance categories are 24 waste streams. The waste generated from operational repairs follow: batteries, oil, antifreeze, fuel filters, chassis grease, PD-680 fluid, PD-680 sludge, silicone brake fluid, gas, diesel, absorbent, tires and solid refuse including oil, air and coolant filters. Body work generates paint rags, sodium hydroxide, paint booth filters, waste

paint and paint thinners. Both categories share basic solid refuse waste such as paper, scrap metal and packaging materials.

Federal regulations deemed 14 of these waste streams hazardous. Mandated reduction of these 14 waste streams had to be met by 1996. To meet these goals we embarked



on an endless search for new, more efficient equipment, maintenance procedures, and substitute chemicals.

The purpose of this text is to spread the word that there are means to an end, but, as we all know, there is no end when dealing with the protection of the environment. The ideas, equipment and chemicals described

herein helped us reach the mandated levels set forth by Congress, but by no means have these products ended our search for a better way of doing business. They have, however, fueled our search for even better ideas and products to reach our stringent squadron environmental goals.

Eielson Environmental Measures

Synthetic Oils (Hydraulic and Engine Oil (hydrocarbon based)

- Purpose: Better lubrication and longer life - Synthetic oils have been in use on Eielson since 1988. Since introduction into the fleet, we have experienced a large reduction in component failures and no start conditions that were prominent with 100 percent petroleum oils.

Propylene absorbent materials (roll) - Purpose: Substituted for clay absorbent (dry sweep) - Clay absorbent is less efficient and is costly to dispose of. The propylene absorbent is lighter and is eight times more absorbent than clay.

Jet Washer - Purpose: Large vehicle parts cleaning - Cleans parts with soap and hot water under pressure. A rotating tray allows for 100 percent coverage. An oil skimmer is built into the rear of the unit.

Ozone Depleting Chemicals (ODC) and Chlorofluorocarbons (CFC) - In 1993 we started deleting from our shelves all materials containing either ODC's or CFC's. We have since then reduced the amount of these two chemicals 99 percent from shop stock.

Tire Recapping - Purpose: Extend tire life - Last year we recapped 25 percent of used tires utilizing a local contractor. By the end of 1997 we will be recapping 100 percent of all used tires deemed practical (16" or larger.)

Scrap Metal Segregation - Purpose: To ensure recycling is made easier - We segregate metals into five separate bins; radiators, aluminum, brass, iron and electric motors. To ensure no environmental contamination is incurred by ourselves or the recycler, only put metal into bins after draining, flushing and degreasing of the metal is complete.

Antifreeze Filtration Unit - Purpose: Filter impurities from used antifreeze - Antifreeze is drained from vehicles before engine disassembly or when a coolant system component is replaced. Usually antifreeze picks up some dirt and oil on its way to the drip pan, causing the antifreeze to be distilled. We built a filtration unit to reduce the amount of distillation.

Filter Splitter - Purpose: Substitution for filter crusher - The filter splitter works like a tubing cutter. It cuts spin on filter canisters allowing the element to be removed. Both the canister and the element are placed into the "Smart Ash Burner" and incinerated. This allows for more filters to be burned at one time and for thorough incineration.

Oil Analyzer - Purpose: Reduce new oil purchases - The oil analyzer allows oil changes on an as needed basis instead of on a scheduled basis. The oil is tested by the main oil analyzer to determine what contaminants are in the system. This allows a mechanic to determine where contaminants are entering the oil and repair the problem. This has extended our oil's life an average of 3:1.

Bypass Oil Filtration - Purpose: Extends oil life indefinitely - The vehicle-mounted engine oil refining system constantly refines the oil. Refining is accomplished with a heating element that turns fuel into vapors and vents them into the engines intake. The refiner contains a spin-on filter for secondary filtration. This system also extends the life of the OEM filter an average of 5:1.

Smart Ash Burner - Purpose: Incineration - The Smart Ash Burner allows us to incinerate numerous types of waste. Absorbent soaked with nonflammable liquids and oil and air filters have been deemed by the state regulators as OK to incinerate. The by products are ash and metal, which are separated. Ash is nonhazardous and goes to the landfill; the metal is recycled.

Heat Exchanger - Purpose: Capture heat produce by Smart Ash Burner - With the addition of the heat exchanger, we can incinerate fuel filters and fuel soaked absorbent as long as we recoup the energy produced. The heat will be used to heat our dynamometer room. As soon as we are granted permission from the state, we will be allowed to incinerate other waste that has no resale value such as belts, hoses and tire tubes.

Paint Rag Elimination - Purpose: Elimination of hazardous waste - Substitute paper towels for rags. Unlike rags, paper towels allow for air circulation. Any chemicals absorbed by the paper towel will evaporate, allowing paper towels to go to the landfill as nonhazardous waste. We are trying to get permission from the state to allow incineration of paper towels in our "Smart Ash Burner."

Clean Burn Oil Furnace - Purpose: Eliminates expensive oil and contaminated fuel air shipment from our remote Blair Lakes Location - Instead of shipping oil and fuels back to main base for disposal at an estimated cost of \$450 a barrel, the burner allows us to save this money and also provides supplemental heat to our Blair Lakes vehicle maintenance building.

Paint Gun Parts Cleaner - Eliminated purging paint from paint guns with air: reduced airborne paint spray and new thinner procurement cost.

Vehicle Body Prep Station - Purpose: Airborne paint dust elimination - The prep station forms a curtain of air that traps all dust and sends it to a filter, eliminating 100 percent of the airborne dust during larger sanding operations.

Water Borne Primers and Sealers - Replaces hazardous primers and sealers - These chemicals are used to prime and seal metal surfaces during vehicle body repair and total paint operations. Cleaning of paint equipment is accomplished with water and alcohol.

Vacuum Sanders - Purpose: Airborne Paint Dust Elimination - The vacuum sanders are mounted on the wall to a pivoting base for ease of movement. A hose connects the vacuum unit to the sander dust shield. This eliminates 99 percent of paint dust put into the air during minor sanding operations, decreasing health risk and shop cleanup time 60 percent.

Solvent Recycler System - Purpose: Hazardous waste reduction - Eliminates the need to discard thinner used from paint gun cleaning operations. The solvent recycler separates the paint from the thinner allowing the thinner to be reused. The paint is dried into a catch bag and thrown into the dumpster.

Liquid Masking Material (Slime) - Substitute for paper and masking tape - Prior to painting, "Slime" is sprayed onto any vehicle surface to be protected from paint over spray. It is chemical resistant, yet removed with water. When sprayed with water it turns into a soap-like substance and is washed down the shop drainage system.

Styrofoam Paint Booth Filters - Substitute for metal encased filters - Styrofoam filters are 85 percent more efficient than the old style filter. When spent, they are dissolved by placing them in paint thinner. The thinner is then put into the solvent recycler and residue is thrown away with the dried paint.

Aerosol Can Puncturing System - Eliminates paint residue from spent aerosol cans by safely puncturing them. The residue is captured in a 30 gallon barrel that the puncturing device is mounted on. Empty cans are put into metal recycling bin.

For More Information

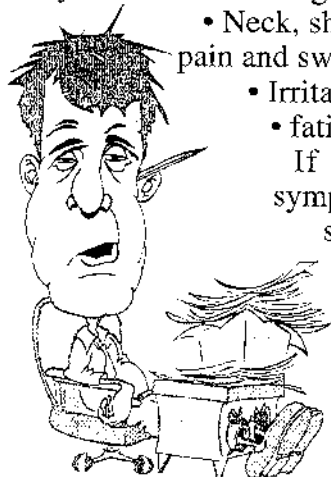
For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2550, Fairbanks, Alaska 99709-5399. For more information, you can also call (907) 451-5320.

Proper design can reduce computer stress

Concerns about how computers affect both your physical and mental health are regularly reported in literature. You can do some things to minimize those effects.

Symptoms: These symptoms have been tied to improper workstation design and high computer usage:

- eyestrain and burning eyes;
- Neck, shoulder, back, arm and leg pain and swollen muscles and joints;
- Irritability and nervousness;
- fatigue.



If you have any of these symptoms, look at your workstation. You may also want to consult your doctor to ensure that other problems don't exist.

Fatigue: Recent information shows that office workers who use computers require more than the traditional 10:00, lunch and 2:00 breaks. They should take a break from the computer at least once an hour. You don't have to leave your desk to take a break. Here are some ideas:

- Vary the work routine to mix types of work. For example, a secretary can mix in other activities such as delivering mail, photocopying or filing. A manager can make telephone calls, make the rounds or review the mail.
- Do desk exercise. These include stretching, massaging tight muscles, eye exercises and deep breathing exercises. These exercises reduce tension and stress while increasing alertness.

Workstation design: Fatigue and stress can also be caused by improper workstation design.

Lighting: The lighting should not cause glare. Avoid bright lights behind the monitor.

Electromagnetic energy: The relationship between electromagnetic energy (EME) and health related problems has been in the news in recent years. Video display terminals do emit EME. Many other devices do too, such as photocopying machines, laser printers, transformers, fax machines and televisions. If you're concerned about the effects of EME, discuss the potential hazards with your doctor.

There are several things that you can do to reduce your exposure. Move the laser printer and other de-

vices that emit EME further away and turn off any unused EME-emitting devices.

How you can adjust your workstation:

Keyboard Height: The keyboard height should be comfortable-about one inch from the top of the table to the top surface of the space bar and bottom row of keys. At that height, the desk top can give your wrists the support that they need. If the desk top is the right height, 24 to 28 inches, it will make your upper and lower arm form a comfortable 90-degree angle. If your keyboard is not adjustable and is too high for comfort, try placing pads under your palms. Keyboards are rarely too low, but you can adjust a low one. Try putting a pad of paper or flat piece of wood under it.

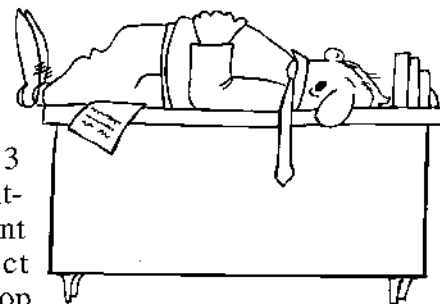
Screen Height: The top of your screen should be no higher than eye level.

Screen Face Angle: The face of your screen should be tilted back about 10 to 20 degrees. If the angle of your screen isn't adjustable and the screen is too vertical, put a small wedge under the front of the monitor to tilt it back. Be sure to clean your screen regularly.

Viewing Distance: The screen should be about 18 inches from your eyes.

Chair Height: The chair is at a comfortable working height when you don't feel excessive pressure on your legs from the edge of the seat. Use this method to determine your correct chair height:

- 1) Stand with the soles of your shoes flat on the floor. Keep your shins perpendicular to the floor and relax your thigh muscles.
- 2) Measure the distance from the top of your knees to the floor.
- 3) Subtract 1 to 3 inches. The resulting measurement is the correct height for the top of your chair seat.



Backrest position: The backrest should fit comfortably at the small of your back to give your back good support.

Reprinted with permission from "The Roadster," April 1995.

Estimax trial copy available online

Estimax for Windows is a project records management software for both owners and contractors monitoring an awarded contract. Other than monitoring a project during its performance (construction) phase, Estimax also serves as a quick estimating tool and a paper saving archival medium.

Some of the reports generated by estimax are: 1) Progress estimates (know exactly how much is due the contractor, say, every 15 days,) 2) Most probable final estimate, with overruns and underruns, 3) Final Estimate, 4) Audit Trail Report (the estimate book), 5) Quick Cost estimate, and 6) Bid Tab.

Estimax was designed for Windows 3.x, Windows 95 and Windows NT.

Main Features of Estimax

Easy setup of a project due to the general contract items database. The program provides for maintenance of a general contract items database. The database has the following fields: item number, item description, unit, unit price, template and optional code. To quickly assemble a new project, one can select and import items from this database to the new project. Selection is done by clicking the mouse over the desired items. Thus, manual typing is minimized in putting together the contract items in a project.

Estimax's database and project files may be accessed by other database engines. Estimax's database and project files are Microsoft Access files, which may be easily imported by other Open Database Connectivity (ODC) databases like dBase, Paradox, Oracle, Sybase, etc. Of course, MS Access can access them directly.

Replaces bulky estimate books. All data needed for audit purposes is in Estimax's electronic files, and detailed printouts may be made of any item and for any period. Thus manual entries in binders and binders of estimate books are no longer essential. If paper reduction is sought, Estimax, with this feature, offers the perfect opportunity.

Prints estimates ready for owner-contractor signatures. All reports are printed with the final look. All estimates are printed with subtotals and grand totals in the last page. Simply add or replace the last page with the signature page to complete a document acceptable by the accounting and finance office.

Estimax keeps track of overruns and underruns for each item and for the project total.

Conditions of use

The State of Alaska, excluding its contractors and sub-contractors, may use Estimax for Windows v1.01 at no charge.

All others may evaluate the software until December 31, 1996. After the end of 1996, no new data entry is accepted by the software. The program and the data files would still function normally, but need a key software to enter new data dated beyond 1996.

Where to obtain a copy

To acquire copies of Estimax for Windows, contact the following:

1. PC Trans, University of Kansas, e-mail pctrans@kuhub.cc.ukans.edu

2. McTrans, University of Florida, e-mail mctrans@ce.ufl.edu

Additional information can be acquired by visiting <http://home.sprynet.com/sprynet/rfernand/estimax.htm> on the Internet.

'Virus' Alert

You might want to run a virus check on your computer...there are some new ones out there... ;^)

AT&T virus - Every three minutes it tells you how great it is.

MCI virus - Every three minutes it says you're paying too much for the AT&T virus.

Politically correct virus - Refuses to admit it is a virus, only and "electronic microorganism."

Texas virus - It's always bigger than other viruses.

Adam & Eve virus - Takes a byte out of your Apple.

Congressional virus - Your computer locks up, screen splits erratically with messages on each half blaming the other side for the problem.

Airline virus - You're in Dallas but your data is in Hong Kong.

Hillary Clinton virus - Your data disappears, then reappears on your desk months later without logical explanation.

Jimmy Hoffa virus - Your data is never found again.

Bill Clinton virus - Runs every program on the hard drive simultaneously, but doesn't accomplish anything for the user.

Health care virus - Tests your system for hours, finds nothing wrong and bills you for \$4,500.

George Bush virus - Says "Read my disks, no new files," then fills your free space with new files and blames the congressional virus.

Chicago Cubs virus - Your PC makes frequent mistakes, comes in last in the reviews, but you still love it.

Reprinted with permission from, "LTAP Quarterly Newsletter," Spring 1996.

For More Information

For back issues of our newsletter and inserts, or to get on our mailing list, write: Alaska Transportation Technology Transfer Program, Department of Transportation and Public Facilities, 2301 Peger Road, M/S 2550, Fairbanks, Alaska 99709-5399. For more information, you can also call (907) 451-5320.

DATE	EVENT	SPONSOR/CONTACT	LOCATION
November 12-13	Project & Contract Management in Rural Alaska	Gil Gutierrez @ (907) 443-4364	Anchorage Hilton Anchorage, Alaska
November 14-15 November 18-19 November 21-22	Bicycle/Pedestrian Planning & Design Workshop	UAF Conferences and Special Events @ (907) 474-7800	Juneau, Alaska Anchorage, Alaska Fairbanks, Alaska
November 17-22	AML Local Government Conference	Alaska Municipal League @ (907) 586-1325	Anchorage, Alaska
March 10-14, 1997	SDIC & CPO Class	Jim Bennett @ (907) 451-5322	Juneau, Alaska
March 16-19, 1997	ISSA 35th Annual Conference & 4th Annual World Congress	Pamela Romaine @ (202) 857-1160	Paris, France
March 17-21, 1997	NHI COurse #13442 Materials Control & Acceptance	Jim Bennett @ (907) 451-5322	Anchorage, Alaska
May 4-10, 1997	ISCORD 1997	Organizing Committee Chariman @ (907) 561-3280	Captain Cook Hotel Anchorage, Alaska
May 25-30, 1997	7th International Offshore & Polar Engineering Conference	ISOPE '97 @ (303) 273-3673	Honolulu, Hawaii
August 10-14, 1997	8th International Conference on Asphalt Pavements	Conference Management @ (206) 543-5539	University of Washington Seattle, Washington

Meetings Around Alaska

Society	Chapter	Meetings Days	Location
ASCE	Anchorage Fairbanks Juneau	Monthly, 3rd Tues., noon Monthly, 3rd Wed., noon Monthly, 1st Wed., noon*	Northern Lights Inn Captain Bartlett Inn Breakwater Inn * except June-August
ASPE	Anchorage Fairbanks	Monthly, 2nd Thurs., noon Monthly, 1st Fri., noon	West Coast International Inn Captain Bartlett Inn
ASPLS	Anchorage Fairbanks Mat-Su Valley	Monthly, 3rd, Tues., noon Monthly, 4th Tues., noon Monthly, last Wed., noon	Executive Cafeteria, Federal Building Ethel's Sunset Inn Windbreak Cafe; George Strother, 745-9810
ITE	Anchorage	Monthly, 4th Thurs., noon	Sourdough Mining Company
IRWA	Sourdough Ch. 49 Arctic Trails Ch. 71 Totem Ch. 71	Monthly, 3rd Thurs., noon** Monthly, 2nd Thurs., noon# Monthly, 1st Wed., noon	West Coast Internat'l Inn **except July & Dec. Last Frontier Club #except December Mike's Place, Douglas
ICBO	Northern Chapter	Monthly, 1st Wed., noon	Zach's, Sophie Station
AWRA	Northern Region	Monthly, 3rd Wed., noon Brown Bag Lunch	Room 531 Duckering Bldg., University of Alaska Fairbanks, Larry Hinzman, 474-7331

Alaska Transportation Technology Transfer Program

Calendar

Knysh joins Alaska T² advisory board

The Alaska Technology Transfer advisory board has gone international.

The T² advisory board, at their quarterly meeting held in April, decided to add a representative from the Yukon Territory, Canada to the board.

"Canadian transportation professionals from the Yukon Territory have been participating in T² training activities since the beginning of the program," said Sharon McLeod-Everette, Alaska T² director. She said that there has already been a significant exchange of information between Alaska and the Yukon Territory.

"There is a lot of information that we can share," McLeod-Everette said.

Paul Knysh, of the Yukon government Community and Transportation Services transportation engineering department, was appointed as the Yukon Territory's representative to the T² advisory board. He said that the partnership between Alaska and the Yukon should be beneficial.

"The geography, climate and problems that we encounter are very similar," Knysh said.

Knysh was born and raised in Winnipeg, Manitoba, Canada. He graduated from high school there in 1971 and graduated from the University of Manitoba in 1975 with a B.S. in Civil Engineering.

In between studies, Knysh worked two summers surveying in the Yukon on the Dempster Highway. Knysh said that it was then that he became interested in the Yukon and in the transportation field.

"The vastness of the north and the varied topography combined with the challenges of the permafrost construction intrigued me," Knysh said.

After graduation from college, Knysh went to work for Public Works Canada as a project engineer and spent the next four years supervising location, design and construction projects on the Dempster and Alaska Highways.

When the Shakwak project was started in 1979, Knysh was assigned to work on that project. In 1982, he became the Project Manager, OGD (Other Government Departments.) His responsibilities included managing highway projects funded by other government agencies, such as the Shakwak Project and the North Canol Road.

Knysh worked with these two road projects for about 10 years, taking up other projects like the South



Klondike Highway, when the Shakwak and North Canol Road projects were in lulls.

In 1992, responsibility for the Alaska Highway and Haines Road was transferred from Public Works Canada to the Yukon Territorial government. Knysh and most of his staff were transferred, but the transfer was actually in name only, he said.

"Although my employer has changed, my management responsibility for the Shakwak Project has not," Knysh said.

Knysh currently resides in Whitehorse with his wife of 24 years, Joy and their 8-year-old son, Garrett.

He is a certified level II soccer coach and coaches children's soccer in his spare time. He is also involved in children's hockey, baseball and scouting. Knysh also enjoys working with computers, woodworking, and keeping aquariums. He said he is currently attempting a marine aquarium, which is very challenging.

Knysh said he hopes to continue with his work on the Shakwak Project until it is completed. At home, he said his goals relate to his family and enjoying his son as he grows up.

-by Marmian L. Grimes

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Work zone checks can save lives

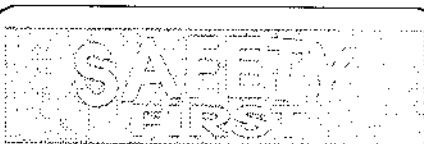
Field Personnel Checklist

- ☐ Do traffic control devices conform with the Manual on Uniform Traffic Control Devices (MUTCD)?
- ☐ Does traffic flow smoothly and safely?
- ☐ Are workers safely protected from traffic?
- ☐ Are provisions for pedestrians adequate?
- ☐ Are equipment, materials, workers and vehicles kept away from traffic?
- ☐ Is advance warning appropriate for the work in progress?
- ☐ Is design and maintenance of temporary bypass or detour adequate?
- ☐ Is traffic protected from abrupt drop-offs?
- ☐ Are temporary pavement markings used effectively?
- ☐ Are old pavement strips and markings obliterated?
- ☐ Are traffic control devices properly positioned, in sound condition and well maintained?
- ☐ Are flag persons used as needed and performing well?
- ☐ Are signs readable and do they have proper reflectors?
- ☐ Are signs covered or removed when out of use?
- ☐ Are hazards properly shielded?
- ☐ Are there adequate signs and barricades at intersections?

Safety Checklist

Administrator's Checklist

- ☐ Establish ongoing coordination and communication with traffic enforcement (police) working in the jurisdiction.
- ☐ Invite enforcement personnel to attend pre-construction maintenance conferences.
- ☐ Invite operational commanders and supervisors to attend pre-construction maintenance conferences.
- ☐ Invite road supervisors to all training programs on work zone requirements as specified in local, state and national manuals, particularly the MUTCD.
- ☐ Seek regular day and night patrols of all construction work zones.
- ☐ Establish ongoing liaison between project engineers, construction engineers, and local officers.
- ☐ Establish procedures for periodic command level inspection of all construction sites to ensure adequacy of traffic control devices and traffic control.
- ☐ Establish procedures by which discrepancies or deviations from the traffic control plan and/or manual can be reported to appropriate highway and police officials through joint communication.



**THE SAFE WAY IS
THE BEST WAY**

-by Maj. Tom Milldebrandt, Arizona Department of Public Safety

Alaska Transportation Technology Transfer Program

Health and Safety Issues

Drivers learn to ignore inaccurate signage

The following is an excerpt from a real letter sent to the City of New York. Could this be true in your area?

Dear Commissioner Sander:

One of these days I'm going to run over one of your highway work crews, and it'll be your fault.

So why would I accidentally run over a road crew? Simply because I, like every other New Yorker with an IQ exceeding 50, learned a long time ago to disregard all lane closures and work crew signs since they are usually wrong. Mostly your crews simply fail to remove the signs when they are finished (or at least stop) working. As a result, any given roadway has multiple signs per mile referring to lanes being closed on both the right and the left sides of the roadway. On the northbound FDR Drive

from the Brooklyn Bridge to the Willis Avenue Bridge there are at least a dozen lane closure signs no longer valid which should have been removed ages ago; I think one sign has a dinosaur print on it, it's so old. If you believe the signs, you'd have to assume that all three lanes are closed in many places, and that 'End Road Work' signs are meant to be political statements since these signs are merely feet from other signs saying 'Lane Closed 1000 Feet.'

Don't they realize that the reason that drivers go whizzing by construction/paving sited with total disregard for the safety of the workers is that we don't believe that the workers exist until we're passing them. Please have your crews make sure that their signs correspond to reality. I'm sure it's more expensive to replace a worker than to pay one to spend a few minutes taking signs down.

Reprinted with permission from ATTSA's "The Zone," August 1995

Work zone crash responses outlined

While different agencies treat work zone crashes differently, it is important to note that there are several guidelines which are helpful for any agency experiencing a crash in their work zone. While everyone is aware that the documentation and reporting of any crash is important, it is not always clear what information is necessary. The following details should be the minimum details an agency provides after a crash:

- Date
- Time
- Weather
- Road Condition
- Job Number
- Street/Route Number or Name
- Type/Number of Vehicles Involved
- Driver's Names
- Investigating Police Officer's Name
- Dates of Similar Crashes

Agencies should add to this list any other information which may be deemed important.

It is also important to provide a diagram of the crash. This should be a clear picture which includes any construction work adjacent to the crash scene. All vehicles involved should be sketched according to their position both before and after the crash, and the direction of traffic flow should be clear. The crash location should be clearly labeled as occurring in the advance warning area, transition area, buffer space, work area or termination area. Take note of all traffic control devices present at the time.

The crash should also be described for clarity by use of the following: statements by drivers, witnesses and police; facts about the scene, vehicle damage, physi-

cal evidence, injury information, etc.; and recommendations of follow-up actions that need to be taken.

Photographs are great for showing the relationship of vehicles to one another, skid marks, traffic control devices, road condition and any other factors which may have visibly contributed to the crash. Color film is the best to use because it shows more detail. If photos are taken, try to note the position from which they were taken, either on a sketch or on a separate report.

The final information which should be included is a list of actions taken to restore any traffic control devices to original condition or notification of the proper authorities of corrective actions which need to be taken immediately.

Reprinted with permission from "Lone Star Roads" Spring 1996.

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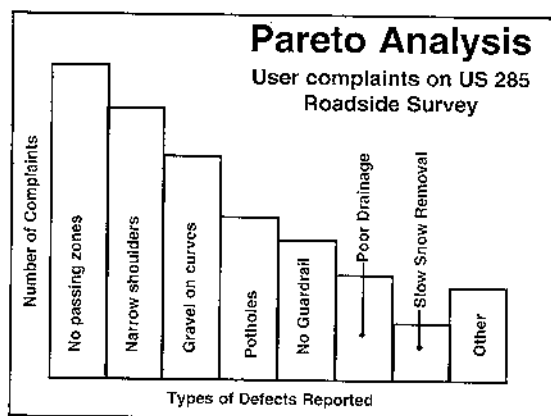
Terms key to understanding Quality

The host of terms used in Quality Improvement discussions and charts need some definition

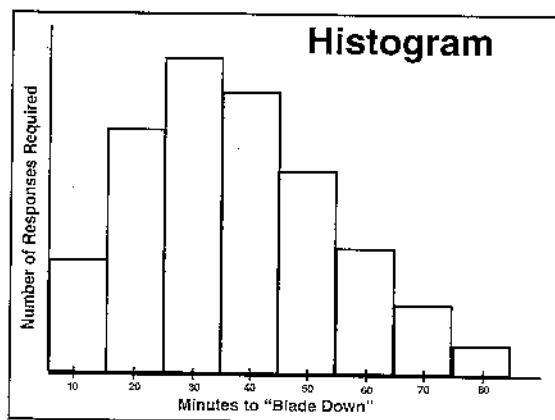
Quality Improvement Team: A team of six to ten managers who are chartered to processes and products for their capability to meet customer requirements.

Quality Action Team: A team of six to ten employees who work closely with the process found 'not capable' and who craft a solution to the problem.

Pareto Analysis: A vertical bar graph displaying the relative significance of all the problems or conditions used to determine order of importance. An example of customer complaints on highway operations is shown for illustration.



Histogram: Another type of bar graph which displays distribution of data. For example, we may wish to analyze response times for snow removal crews.

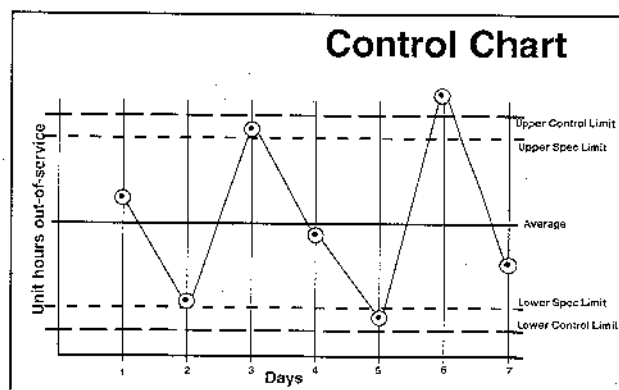


Control Chart: A chart which indicates random and unique event variation in a repetitive process. A process is 'in control' statistically if the variation in measurements stays within the upper and lower control

limits. For example, we may be analyzing the downtime of units in a large fleet of dump trucks operated by a subcontractor.

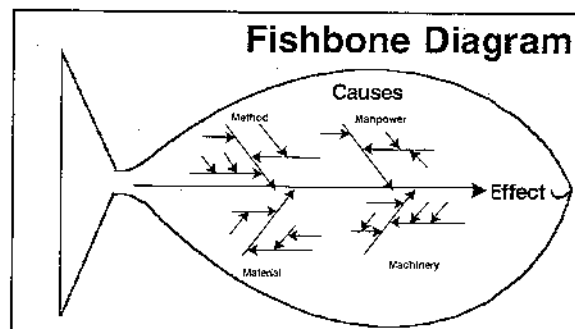
The downtime process is said to be in control if all the daily observations fall between the statistically determined upper and lower control limits. As shown, on day six some non-random event (truck hit by train) requires special action to bring the system back into control.

Note that a process which is in control does not necessarily mean it meets the requirements of the customer (prime contractor), which are shown as upper and lower specification limits. In such cases, either the process must be improved or the specifications changed.



Fishbone Diagram: A cause and effect analysis tool for problem solving. It is structured as shown.

The causes are grouped into major categories such as: method, manpower, material and machinery, and through a process of brainstorming, the team members suggest all possible causes in those categories which produce the effect. Sub-causes and sub-sub causes are explored in order to discover the root cause of the effect or problem.

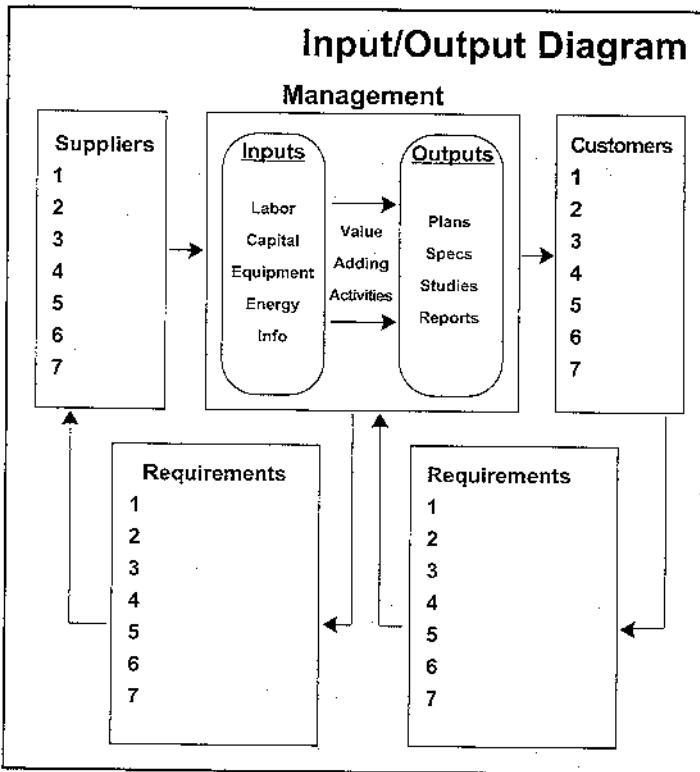


Brainstorming: A structured or unstructured process used to help a group create as many ideas as possible in as short a time as possible.

Root Cause: The basic cause or causes which answer the question "Why does it happen?" as one constructs continually subordinate causes on the fishbone diagram. Especially look for the causes that appear repeatedly.

Nominal Group Technique: A structured type of brainstorming effective in the process of problem selection. This process assures that all team members have equal voice in the outcome and that final selection is the result of an orderly multivoting process to establish priority importance.

Input/Output Analysis: A graphically assisted method to define relationships between the parties concerned with quality.

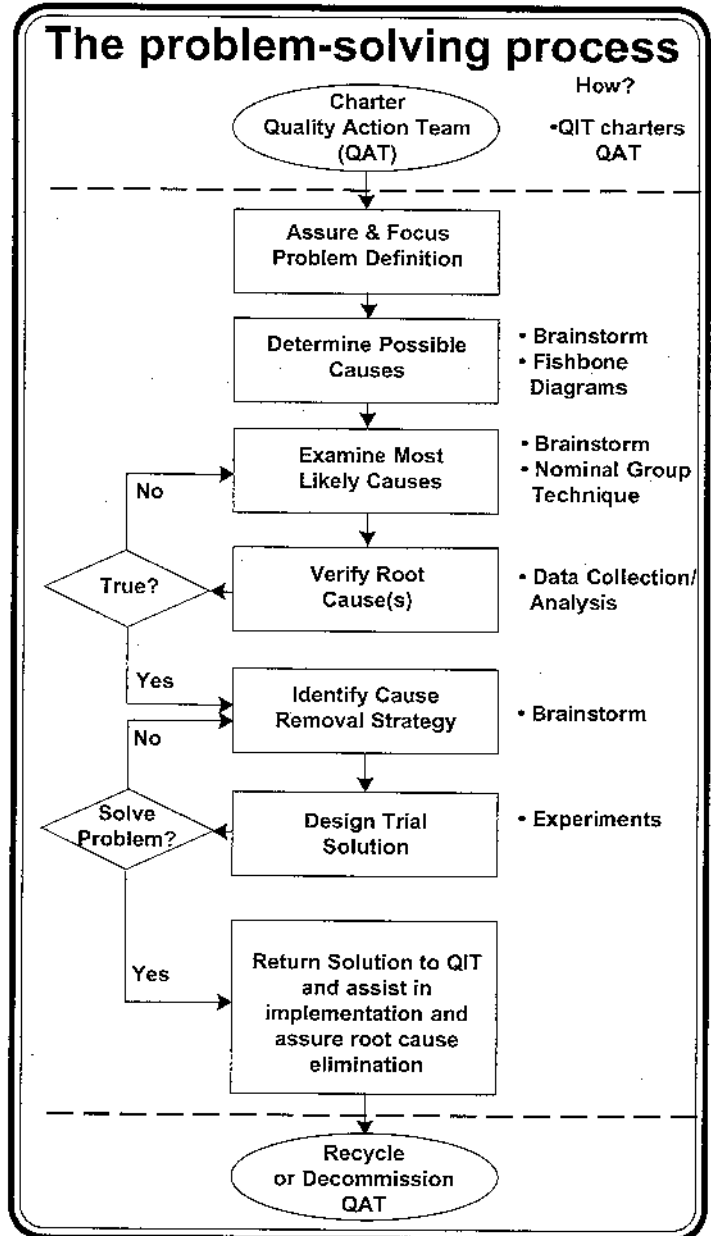


Other terms commonly found in the Quality Management literature include:

Big Q/Little q: Terms used by Juran to distinguish between the 'vital few' and the 'trivial many' Continuous Quality Improvement opportunities. The theory of Big Q is that major breakthroughs are necessary for rapid productivity increases and that a 'full court press' is not justified in applying the Quality Improvement Process to minor problems.

Zero Defects: A term used predominately by Crosby to describe a goal for driving out all non-conformance (failure). The most effective quality control processes now envisioned call for no more than 3 errors per million chances.

Benchmarking: Pioneered in recent quality history by the Xerox Corporation, this process is organized to determine improvement goals by comparing current performance to the 'best in class.' For example, Xerox determined that mail order clothier L.L. Bean did the best job of anyone in product distribution, and set their own goal based on L.L. Bean performance for that attribute.



Excerpted and Abridged from "Quality Improvement Resource Guide," FHWA publication No. FHWA-SA-94-002, October 1993.

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Please check the publications that you would like to borrow.

- **Low Cost Winter Maintenance - Swedish Experiences: Presentation at the OECD Workshop on Road Winter Maintenance at Praha**, 18-20 October 1994, by Gudrun berg, VTI sartryck Nr. 237, Vagoch transportforskningsinstitutet, 18pp. #1507
- **High Occupancy Vehicle (HOV) Lane Marketing Manual: Final Report**, DOT-T-95-04, Traffic Management Systems Division, FHWA, September 1994, 325pp. #1508
- **An Evaluation of High-Occupancy Vehicle Lanes In Texas**, 1993, FHWA/TX-94/1353-1, Research Report 1353-1, Texas Transportation Institute, Texas Department of Transportation, October 1994, 338pp. #1509
- **Results of the Six- and Twelve-Month Evaluations of the Texas Supplemental Maintenance Effectiveness Research Program (SMERP) Sites**, TX-95/2908-1F, Texas Transportation Institute, Texas Department of Transportation, December 1994, 108pp. #1510
- **Concrete Research, TRR 1458: Materials and Construction**, Transportation Research Board, National Research Council, 1994, 134pp. #1511
- **Pavement Management Systems, TRR 1455: Pavement Design, Management, and Performance**, Transportation Research Board, National Research Council, 1994, 187pp. #1512
- **Intermodal Technical Assistance for Transportation Planners and Policymakers**, USDOT/FHWA, Office of Intermodalism, December 1994, 66pp. #1513
- **Transportation Services, Utilization and Needs of the Elderly in Non-Urban Areas: Patterns in Two Kentucky Communities**, DOT-T-95-08, USDOT/Federal Transit Administration, December 1994, 96pp. #1514
- **Performance of Traffic Markings in Cold Regions: Final Report**, INE/TRC 95.03, Institute of Northern Engineering, Alaska Department of Transportation and Public Facilities, August 1995, 90pp. #1515
- **Computer Simulation of Dynamic Truck Loading Using Measured Pavement Profiles: Final Report**, FHWA/OH-95/005, Wright State University, Ohio Department of Transportation, June 30, 1995, 244pp. #1516
- **Lake Minchumina Airport Improvements, Lake Minchumina, Alaska; Draft Environmental Assessment**, State of Alaska, Department of Transportation and Public Facilities, June 1988, 51pp. #1517
- **Air-Vapour Barriers**, SRC # E-825-2-E-81, D. Eyre and D. Jennings, Saskatchewan Research Council, 1981, 98pp. #1518
- **Enhancements to Passive Warning Devices at Railroad-Highway Grade Crossings**, Report No. 1273-1, Texas Transportation Institute, Texas Department of Transportation, January 1994 Revised: June 1994, 221 pp. #1519
- **Post-NCHRP Report 350 Issues and Research Needs: Transportation Research Circular**, Number 440, April 1994, 53 pp. #1520
- **Transportation Guide for Indian Tribal Governments**, Washington State Department of Transportation, April 1995. #1521

Alaska Transportation Technology Transfer Program

Notes on Publications & Videos

- **Pedestrian Signals: Warrants and Effectiveness**, Center for Transportation Research, Bureau of Engineering Research, The University of Texas at Austin, Research Report 1296-2F, September 1994, 100 pp. #1522
- **Highway Research Abstracts**, Volume 27, Number 1, Transportation Research Board / National Research Council, Spring 1994, 315 pp. #1523
- **Highway Research Abstracts**, Volume 27, Number 2, Transportation Research Board / National Research Council, Summer 1994, 326 pp. #1524
- **Traffic Control Practices for Low Volume Local Roads**, South Dakota Transportation Technology Transfer Service, in Cooperation with South Dakota Department of Transportation, Division of Planning, Traffic and Safety Engineer's Office, 1993 edition. #1525
- **Survey of Alternative Road Deicers**, FHWA-SA-95-040, U.S. DOT/FHWA, for Nevada DOT, and California DOT, February 1992, 252pp. #1526
- **Temporary Erosion Control Selection - TAMUBMP Computer Program**, FHWA/TX-94/1379-2F, TTI, 0-1379, Research Report 1379-2F, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, November 1994, 21pp. #1527
- **Feasibility Study for Hydraulic Modeling Facility for Scour Problems**, FHWA/TX-95/1408-1F, TTI: 0-1408, Research Report 1408-1F, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, November 1994, 138pp. #1528
- **Characterization of Ohio Subgrade Types: Final Report**, No. FHWA/OH-94/006, Ohio Department of Transportation, U.S. Department of Transportation, and the Federal Highway Administration, February 1994. #1529
- **Construction Robotics and Automation, and Foundations Engineering**, Transportation Research Record No. 1406, Transportation Research Board, National Research Council, 1993, 141pp. #1530
- **Establishment of Grass Mixtures on Roadsides**, TX-94\902-6, TTI: 7-902, Research Report 902-6, Texas Transportation Institute, Texas Department of Transportation and Public Facilities, November 1994, 52pp. #1531

These publications may be borrowed for three weeks. However, if you need the materials longer, just contact our office for an extension. Questions? Contact **Susan Earp** at (907) 451-5320 or TDD: (907) 451-2363.

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Please check the videos that you would like to borrow.

- ___ **Clean Up that Mess**, South Dakota DOT, July 1991. #353
- ___ **The Clemson Beaver Pond Leveler: One Solution**, 50:00. #354
- ___ **Cold Weather Starting and Operation**, 24:00. The Cat Company, 1975. #355
- ___ **The Creative Spirit: The Creative Spirit as Work Program Three**, 59:00. Ambrose Video Publications, 1991. This video takes a look at creativity in the workplace. #356
- ___ **The Creative Spirit: The Creative Community Program Four**, 59:00. Ambrose Video Publications, 1991. This video takes a look at creativity as a way of caring for others. #357
- ___ **Concrete Pavement Overlays**, 22:00. Strategic Highway Research Program, June 1994. #358
- ___ **Concrete Series: Highway Construction Inspection Curriculum**, Arizona DOT's Concrete Series. #359
- ___ **Creating Meadows Through Road Maintenance and Construction**, 8:00. #360
- ___ **DBE Certification**, 9:30. DOT/PF DBE/ExEEO. #361
- ___ **DOT & PF Research**, #362.
- ___ **The Edge You Need: Tips for Practical Proctor Testing**, #363.
- ___ **Eklutna Overhead Grinder Damage**, #364
- ___ **An Ensel Solution**, 05:14. September 1993. #365
- ___ **Environmental Protection Procedures**, 15:00. SNI International Resources, Inc, NCHRP. #366
- ___ **Equipment Management System**, 40:00. FHWA. #368
- ___ **Essential Skills for Trainers**, RTAP - FTA. #367
- ___ **Evaluation Procedures for De-Icing Chemicals**, 10:47. #369
- ___ **Field Handling Techniques for Epoxy-Coated Rebar at the Job Site**, 8:40. Concrete Reinforcing Steel Institute, 1996. #370
- ___ **Highway Safety Program: Silent Factor**, 30:00. FHWA-DOT, 1987. #371
- ___ **Hot Sander Trials in Fairbanks**, 15:00. January 26, 1987. #372
- ___ **Video Transfer: Number Four**, Number 4 in a series of 9 videos. This video covers straight blade snow plows, crack sealer operation, highway sander calibration, tar pot operation and bulldozer preventative maintenance. #347

- **Video Transfer: Number Five**, Number 5 in a series of 9 videos. This video has a highway maintenance overview of traffic center work areas. The areas that are covered are the flagger, traffic control in moving operation and traffic control in maintenance work areas. #348
- **Video Transfer: Number Six**, Number 6 in a series of 9 videos. This video covers routine structure clean-edge rut repair, maintenance drainage, mowing, chemically controlling vegetation, removal of minor slides, cleaning ditches, guardrail repair, and plowing snow and salting. #349
- **Video Transfer: Number Seven**, Number 7 in a series of 9 videos. This video covers patching with hand tools, maintaining non hard surface temperature pothole repair, lane leveling, bituminous surface sealing cracks, and bituminous seal coat repair. #350
- **Video Transfer: Number Eight**, Number 8 in a series of 9 videos. This video covers two types of sweeper operation and preventative maintenance, pneumatic tire roller operation and preventative maintenance and steel wheel roller operation structures inspection. #351
- **Video Transfer: Number Nine**, Number 9 in a series of 9 videos. This video covers maintenance supervisors responsibilities, patching with portland cement concrete (PCC), patching PCC with bituminous materials and PCC joint sealing. #352

These videotapes may be borrowed for three weeks. However, if you need the materials longer, just contact our office for an extension. Questions? Contact **Susan Earp** at (907) 451-5320 or TDD: (907) 451-2363.

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Guidelines for Bicycle and Pedestrian Facilities: First Year Activities, FHWA/TX/96/1449-1, Danise S. Hauser, Robert J. Benz and H. Gene Hawkins, Jr.

This report describes the tasks conducted during the first year of a two-year study to develop guidelines for bicycle and pedestrian facilities on both existing and future roadways in Texas. The tasks were concentrated in four basic activity areas: 1) assessment of current practices; 2) collection of citizen and other agency recommendations; 3) assessment of various procedures and facilities; and 4) development of draft guidelines.

Evaluation of Pavement Base and Subgrade Material Properties and Test Procedures, FHWA/TX-96/1335-2, Leslie Titus-Glover and Emmanuel G. Fernando.

The objective of this research was to develop simpler and less expensive procedures for characterizing the resilient properties, strength parameters and angle of internal friction of base and subgrade materials. This was accomplished by developing prediction equations which use easy to obtain soil properties and by evaluating a modified Texas triaxial test procedure which can be used to determine both the strength and resilient properties of pavement materials.

Rock Nail Design Guidelines for Roadway Cuts in Central Texas, FHWA/TxDOT-96/1407-1F, R.B. Gilbert, P.P. Nelson, C.J. Young, B.E. Moses and Y.A. Al-Jalil.

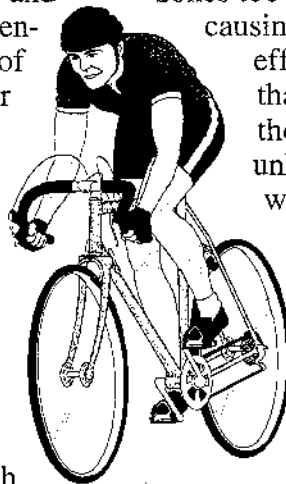
The objective of this procedure was to develop a rational design procedure for road cuts in the soft rock of central Texas. Comprehensive field observation was done on lithologies ranging from limestones and dolostones of varying purity to clay-rich marls and clay shales. Design guidelines are provided in this publication.

Overweight Permit Rules, FHWA/TX-94/1443-1F, Peter B. Keating, Stephen C. Litchfield and Minjian Zhou.

This document defines standards for issuing permits for overweight vehicles crossing standard H-type and HS-type Texas highway bridges. After field testing, a general formula and a bridge specific formula were developed to help simplify the permitting process.

Lighted Guidance Devices: Intelligent Work Zone Traffic Control Highways, MN/RC-96-05, Max Vercruyssen, Gayna Williams and Michael G. Wade

Annually, thousands of highway workers risk serious injury and death from drivers who enter work zones too fast or accelerate after entering the zone, causing accidents. This research investigates the effectiveness of a system of pulsing lights that gave the illusion of movement (called the Phi phenomenon), in causing drivers to unknowingly synchronize their vehicle speed with the light pulses.



Manual of Practice for an Effective Anti-Icing Program, FHWA-RD-95-202, S.A. Ketcham, L.D. Minsk, R.R. Blackburn and E.J. Fleege.

This manual provides information for the successful implementation of an effective anti-icing program. It is written to guide the maintenance manager in winter road maintenance. It contains recommendations for anti-icing practices and guidance for conducting anti-icing operations during specific precipitation and weather events.

Performance-Based Seal Coat Asphalt Specifications, FHWA/TX-96-1367-1, W.E. Elmore, M. Solaimanian, R.B. McGennis, C. Phromsorn and T.W. Kennedy.

This report presents the results of a study conducted to determine if the asphalts currently used in Texas could meet the PG, or Superpave, grading system.

The Effect of Bar Orientation on the Behavior of Column Splices, FHWA/TXDOT-96/1363-1, Jeffrey S. Schmitz and James O. Jirsa.

Column splices can either be oriented in a side-by-side configuration or in an offset configuration. The purpose of this study is to examine experimentally the behavior of both splice orientations and to present recommendations for their usage.

Method to Evaluate Remaining Prestress in Damaged Prestressed Bridge Girders, FHWA/TX-96/1370-2, S.A. Civjan, J.O. Jirsa, R.L. Carrasquillo and D.W. Fowler.

In assessing damage to a prestressed bridge girder, it is often necessary to determine the prestress remaining in the strands. A device was developed to estimate stress levels in strands in damaged bridges. The device was then tested. The results of the tests are detailed in this publication.



Alaska Transportation Technology Transfer Program

New Publications

COLORMAP - User's Manual with Case Studies, FHWA/TX-96/1341-1, Tom Scullion, Yiqing Chen and Chun Lok Lau.

COLORMAP is a software package used for processing Ground Penetrating Radar waveforms. This report is a user's manual for COLORMAP, and also includes some case studies of various applications of the program.

Motorist Understanding of Alternative Designs for Traffic Signs, FHWA/TX-96/1261-5F, Dale L. Picha, H. Gene Hawkins, Jr. and Katie N. Womack.

This report describes a study in which ten traffic control devices were evaluated by a total of 978 participants. Participants were asked to evaluate several different designs for the same intended meaning. This report also contains recommendations for improving the understandability of some traffic signs.



Evaluation of Plastic Drum Specifications, TX-95/2924-1F, King K. Mak and Richard A. Zimmer.

This report discusses the plastic drum specifications that a plastic drum must have in order to be used in work zones in Texas. The study tests the drums using both the tests named in the specifications and actual crash tests, and then compares the results.

Bridge Inspector's Training Manual 90, FHWA-PD-91-015, R.A. Hartle, W.J. Amrhein, K.E. Wilson III, D.R. Baughman and J.J. Tkacs.

This document is a comprehensive manual on programs, procedures and techniques for inspecting and evaluating a variety of in-service highway bridges. It is intended to replace the Bridge Inspector's Training Manual 70.

Performance Evaluation of NOVACHIP™ Ultrathin Friction Course, FHWA/TX-96/553-2F, Cindy K. Estakhri and Joe. W. Button.

This report documents the performance of NOVACHIP™ on two highways near San Antonio, Texas.

Utilization of Recycled PCC Aggregates for Use in Rigid and Flexible Pavements, FHWA/OH-95/025, Chhote L. Saraf and Kamran Majidzadeh.

This report documents a study that was conducted to demonstrate the feasibility of using recycled crushed concrete from old pavements as aggregates in new PCC and asphalt pavements and to develop guidelines and criteria for making cost-effective decisions concerning the recycling of PCC pavements.

Dynamics and Stability of Capsules in Pipeline Transportation, MN/RC-96/17, Yiyuan Zhao and Thomas S. Lundgren.

This project studies a new system concept for freight transportation using capsules in pipelines. This report examines the technical aspects of such a freight pipeline system.

Balancing Production Rates in Hot Mix Asphalt Operations, NAPA Information Series 120.

The process of constructing hot mix asphalt can be divided into four discrete operations: facility, hauling, paving and compaction. This publication addresses ways to balance each of these variables in order to lower unit costs and presents a method for calculating production rates.

Roller Operations for Quality, NAPA Information Series 121.

This document focuses on the compaction process to ensure that the best possible conditions are provided for the roller operations to meet the pavement density and smoothness specifications. It describes some of the key factors involved in providing a high-quality, smooth road surface.

Recycling Hot Mix Asphalt Pavements, NAPA Information Series 123.

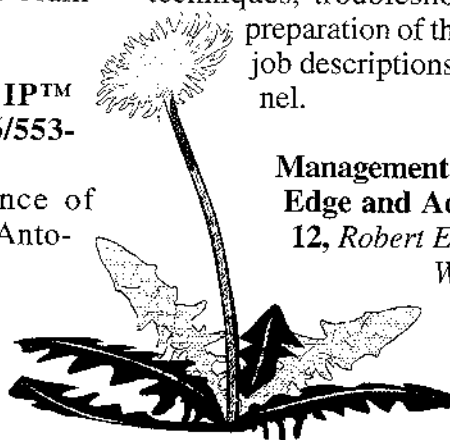
The purpose of this publication is to provide a new, updated document on how to recycle, summarizing for producers and agencies the equipment and methods which are being successfully used to reclaim, size, store and process RAP in various types of Hot Mix Asphalt facilities throughout the country.

Paver Operations for Quality, NAPA Information Series 125.

This publication includes discussions on planning for a paving job, the paver, materials, paver operating techniques, troubleshooting mat blemishes, proper preparation of the pavement prior to paving and job descriptions for each of the paving personnel.

Management of Vegetation on the Pavement Edge and Adjacent Shoulder, TX-95/902-12, Robert E Meyer, Cynthia L. Benner and Wayne G. McCully.

This publication documents the testing of several different herbicides on their control of roadside vegetation in Texas.



Improving Traffic Signal Operations, FHWA-SA-96-007, Institute of Transportation Engineers.

This report examines how some simple adjustments in a traffic signal system can reduce congestion and improve traffic flow.